

Art Unit: 1771

Listing of Claims

1-34. (Canceled)

3

4 ~~35.~~ (Currently Amended) The layered sheet construction of claim ~~38~~ ~~56~~ which is wound into a helix having successive winds spaced apart to form a gap.

1 ~~36.~~ (Currently Amended) A layered sheet construction comprising:
a. at least one gas permeable, water impermeable layer comprising a microporous layer coated with a gas permeable, polymeric coating;
b. a gas delivery layer proximate the layer of part a, which gas delivery layer comprises a base having a side on which there are a plurality of walls forming a plurality of separate flow channels through which gas can be conveyed to the layer of part a, the ends of said walls opposite the base being attached to the microporous layer; and

further comprising a microbial population proximate the layer of part a.

2 ~~37.~~ (Currently Amended) A process for removal of at least one organic substance or at least one nitrogen source from an aqueous medium containing such a source, said process comprising:

- 1
- a. providing at least one layered sheet construction of claim ~~29~~ ~~36~~;
 - b. establishing a microorganism layer on the layer of part a. of the layered sheet construction;
 - c. supplying a gas to the gas delivery layer of the layered sheet construction; and
 - d. contacting the aqueous medium with the microorganism layer.

38-52. (Canceled)

5 ~~53.~~ (Currently Amended) A process for removal of at least one organic substance or at least one nitrogen source from an aqueous medium containing such a source, said process comprising:

- 3
- a. providing at least one layered sheet construction of claim ~~[[44]]~~ ~~56~~;

Art Unit: 1771

- b. establishing a microorganism layer on or in the microbial support layer of such layered sheet construction;
- c. supplying a gas to the gas delivery layer of said layered sheet construction; and
- d. contacting the aqueous medium with the microorganism layer.

54-55. (Canceled)

3 ~~56~~. (Currently Amended) A layered sheet construction comprising:

- a. at least one gas permeable, water impermeable microporous membrane layer;
- b. a gas delivery layer proximate the layer of part a, which gas delivery layer comprises a base having a side on which there are a plurality of walls forming a plurality of separate flow channels through which gas can be conveyed to the layer of part a, the ends of said walls opposite the base being attached to the microporous layer; and
- c. at least one microbial support layer located on the side of the gas permeable, water impermeable layer of part a opposite the gas delivery layer, said microbial support layer comprising a material suitable for the attachment and growth of a microbial population, and said microbial support layer being rendered hydrophilic, or having increased hydrophilicity, by a means selected from: i. being coated with a hydrophilic polymer; ii. having a hydrophilic polymer grafted to the microbial support layer; iii. incorporation of a surface active additive having a hydrophilic chemical group into the microbial support layer; and iv. a process comprising placing a microporous polymeric membrane in an ion sheath of a plasma containing a reactive species which reacts with the membrane surface and pore interiors.

7
~~57~~. (Currently Amended) A layered sheet construction comprising:

- a. at least one gas permeable, water impermeable microporous membrane layer;
- b. a gas delivery layer proximate the layer of part a, which gas delivery layer comprises a base having a side on which there are a plurality of walls forming a plurality of separate flow channels through which gas can be conveyed to the layer of part a, the ends of said walls opposite the base being attached to the microporous layer; and
- c. at least one microbial support layer located on the side of the gas permeable, water impermeable layer of part a opposite the gas delivery layer, said microbial support layer comprising a material suitable for the attachment and growth of a microbial population and said microbial support layer characterized by carrying a net positive surface charge.

6

3

~~58~~. (New) The layered sheet construction of claim ~~58~~ in which the microbial support layer is a microporous polymeric membrane of part c. iv. of which the interiors of the pores have bonded thereto a species selected from the group consisting of oxygen, nitrogen, silicon, carbon, hydrogen, sulfur and combinations thereof.